Windsor Locks Rodgers Bedrock Compilation Sheet (paper)

Map

NOTICE !

Bedrock quadrangle 1:24,000 scale compilation sheets for the Bedrock Geological Map of Connecticut, John Rodgers, 1985, Connecticut Geological and Natural History Survey, Department of Environmental Protection, Hartford, Connecticut, in Cooperation with the U.S. Geological Survey, 1:125,000 scale, 2 sheets. [minimum 116 paper quad compilations with mylar overlays constituting the master file set for geologic lines and units compiled to the State map, some quads have multiple sheets depicting iterations of mapping]. Compilations drafted by Nancy Davis, Craig Dietsch, and Nat Gibbons under the direction of John Rodgers.

Geologic unit designation table translates earlier map unit nomenclature to the units ultimately used in the State publication.

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Interpretation in Geology 23 Jan 1925

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH
THE STATE OF CONNECTICUT
GEOLOGICAL AND NATURAL HISTORY SURVEY

GEOLOGIC QUADRANGLE MAP
GQ-388

EXPLANATION

Solid red denotes areas of outcrops

Tkp — Portland Arkose
Mostly reddish-brown arkosic siltstone, with some beds of reddish-brown arkose. Layers of medium-gray arkosic siltstone exposed along Stony Brook east of Guild Pond and between Taintor and Round Hills. Fossil wood occurs in gray siltstone at Stony Brook; dinosaur footprints on slabs of reddish-brown arkose below dam at Rainbow

Tkha — Hampden Basalt
Medium- to fine-grained, medium dark-gray to dark greenish-gray basalt. Vesicles and amygdules of calcite, prehnite, zeolites, and quartz common at most exposures. 100 to 150 feet thick

Tkeb — East Berlin Formation
Thinly bedded medium-grey to reddish-brown arkosic siltstone. 400to 600 feet thick

Tkho — Holyoke Basalt
Dark greenish-gray fine- to medium-grained basalt. Upper part irregularly jointed; lower 150 to 200 feet columnar jointed. Vesicles and amygdules of calcite, prehnite, zeolites, and quartz common in upper 50 to 100 feet. Quartz, prehnite calcite, datolite, pyrite, and zeolites occur as fracture fillings. 250 to 300 feet thick

Tksm, Tksmb — Shuttle Meadow Formation[1]
Tksm, reddish-brown to dark reddish-brown arkose and arkosic siltstone. 250 to 300 feet thick.
Tksmb, bleached zone at base of formation. Mostly light yellowish-gray to light greenish-gray arkose and arkosic siltstone, but reddish-brown layers are common. 100 to 150 feet thick

Tkt — Talcott(?) Basalt[2]
Brecciated, medium to dark greenish-gray basalt. Angular fragments of fine-grained basalt are set in a matrix of very fine grained light-colored basalt. Pillow lava overlies breccia along State Route 20. Veinlets, vugs, and amygdules of quartz, calcite, prehnite, and zeolites abundant at most exposures. Angular fragments of dark reddish-brown arkose included in northernmost exposure. (Queried because unit may not be equivalent to Talcott Basalt farther south.) 0 to 150 feet thick

Tknh — New Haven Arkose
Arkosic siltstone, and medium- to coarse-grained arkose, moderate-brown to moderate reddish-brown. Includes beds equivalent to Shuttle Meadow Formation in northwest corner

Upper Triassic — Newark Group — TRIASSIC

Indefinite or inferred contact

Fault, showing dip[3]
Dashed where approximately located; short dashed where inferred; dotted where concealed by water; queried where doubtful. U, upthrown side; D, downthrown side

Asymmetric anticline
Showing crestline. Short arrow indicates steeper flank. Dashed where approximately located; queried where doubtful

Monocline
Showing trace of axis. Queried where doubtful

Strike and dip of beds

Strike and dip of joints

Strike of vertical joints

Quarry

Abandoned mine or quarry

Possible abandoned mine

[1]Correlation of the Shuttle Meadow Formation in the Windsor Locks quadrangle with the Shuttle Meadow Formation as mapped to the south is predicated on the assumption that the lowest lava flow in this quadrangle is equivalent to the Talcott Basalt. If this assumption is incorrect, only about the upper 50 feet of this unit is equivalent to Shuttle Meadow.

[2]The Talcott(?) Basalt in Windsor Locks quadrangle seems to be stratigraphically lower than the Talcott Basalt in the Tariffville quadrangle. This apparent difference in stratigraphic position amounts to about 150 feet in a distance of about 1 mile. It may result from (1) irregularities on the pre-Talcott surface, (2) faulting, (3) folding, or (4) an earlier period of basalt deposition in the Windsor Locks quadrangle. If any of the first three hypotheses is true, the lowest basalt in the Windsor Locks quadrangle is Talcott Basalt; if the fourth hypothesis is true, the lowest basalt in the Windsor Locks quadrangle is older than the Talcott Basalt, and the basalt and beds in the lower part of the Shuttle Meadow Formation, as here mapped, including the bleached zone and two-thirds of the unbleached zone, are equivalent to beds in the upper part of the New Haven Arkose as mapped to the south.

[3]Faults in this area fall into three general categories: (1) Faults that are observed in outcrop. These are all high-angle normal faults which have displacements of less than 50 feet; most have displacements of less than 10 feet. They are shown as solid lines. (2) Faults that are suggested by displacement of the topographic ridges formed on the basalt layers. Some of these displacements might be explained by folds, but most seem to be the result of faulting. They are shown as dashed lines. (3) Faults that are suggested by relatively deep valleys cut into the resistant basalt. These valleys suggest the presence of less resistant zones within the basalt such as might result from shearing. Because these valleys may have been caused by other geologic processes, faults drawn along them are shown as short dashed lines and queries.

Explanation
Jha — Jp — Portland fm, Hampden basalt
Jeb — East Berlin fm.
Jho — Holyoke basalt
Jsm — Shuttle Meadow fm
Jta — Talcott basalt
Tknh — New Haven fm
Newark group

ECONOMIC GEOLOGY

Copper.—The first copper mines worked by the early settlers in North America were in the vicinity of the Old Newgate Prison. The mines known variously as the Granby, Simsbury, or Newgate mines now include a group of partly buried portals and shafts that extend from Old Newgate Prison north for about half a mile. The Higley mine is about 1½ miles south of the prison.

According to Richard H. Phelps (1876) the mines were worked from 1707 to 1767; they were used as a prison from 1773 to 1827; and mining operations were resumed in 1830 and apparently continued until about 1835.

The copper ore occurred as nodules of chalcocite and "yellow pyrite" (chalcopyrite?) in yellowish-gray sandstone. Most of the ore reportedly yielded 10 to 15 percent copper; some masses yielded as much as 40 percent.

In 1955, Mr. Gilbert Hale (oral communication, 1959) of Windsor, Conn., discovered that the copper ores at the mines near the Old Newgate Prison contain uranium. He conducted exploration which involved some diamond drilling and opening some of the tunnels, and concluded that exploitation of the deposits on the property he controlled would be uneconomical.

Our mapping in the area around the copper mines in 1959 disclosed very little new information concerning the deposits. Except for a few tens of feet of underground workings at Old Newgate Prison, all the mine workings were inaccessible. Mine dumps and scattered outcrops near the mine portals furnished all the available information concerning the mines.

In addition to the shaft at Old Newgate Prison, three covered mine openings were found on the slope north of the prison. All openings are in the bleached zone at the base of the Shuttle Meadow Formation. In the area of the Higley mine, two covered shafts were found in a volcanic breccia at the top of the Talcott Basalt.

Chalcocite, bornite, malachite, and azurite are visible in many of the rocks on the mine dumps. In addition, uraninite, coffinite, cuprosklodowskite, and brochantite were identified by use of X-ray techniques by Paul Blackmon of the U.S. Geological Survey. The ore minerals appear to be confined mainly to the "bleached" arkose, although a few specimens of red arkose containing visible copper minerals were found on the dump at the Old Newgate Prison. A few veinlets and small patches of disseminated malachite were found in blocks of volcanic breccia near the abandoned shafts at the Higley mine. In the dumps north of the prison, the copper minerals were found disseminated through the rock and also concentrated along fracture surfaces.

The mine dumps are much more radioactive than the background for the area, radioactivity decreasing abruptly away from the dumps.

Silliman (*in* Phelps, 1876) indicates that the deposit at the Old Newgate Prison is a tabular body apparently conformable to bedding in the Shuttle Meadow Formation. Weed (1911) stated that the Higley mine is in an apparently similar tabular body. With the meager information available it is impossible to reach any conclusions concerning the origin of the deposits. Both are near northeast-trending faults that displace the Holyoke Basalt. Perhaps these faults acted as channelways for the ore-forming solutions which permeated porous areas near the base of the Shuttle Meadow Formation.

Construction material.—The Holyoke Basalt is an excellent source of crushed stone for use as construction material. It was quarried in East Granby in 1959 for this purpose and vast quantities are available in the quadrangle.

Arkose from the Portland was long used as a building stone; it is the "brownstone" of buildings in the New York City area. It is no longer popular, however, and only limited quantities were being quarried in 1959. Huge quantities are available in the quadrangle but discovery and exploitation at present would probably be uneconomical.

REFERENCES CITED

Percival, J. G., 1842, Report on the geology of the State of Connecticut: New Haven, 495 p.

Phelps, Richard H., 1876, Newgate of Connecticut; its origin and early history: Hartford, Am. Pub. Co., 117 p.

Weed, W. H., 1911, Copper deposits of the Appalachian States: U.S. Geol. Survey Bull. 455, 166 p.

Base by U.S. Geological Survey, 1953

Geology by J. H. Eric, 1957 and by R. W. Schnabel, 1959

SCALE 1:24 000

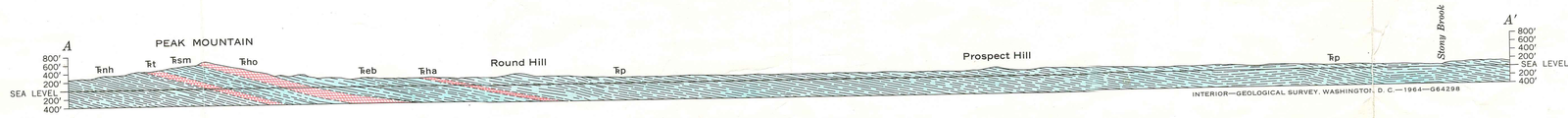
1 MILE

1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION, 1964

CONNECTICUT
QUADRANGLE LOCATION



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BEDROCK GEOLOGIC MAP OF THE WINDSOR LOCKS QUADRANGLE, HARTFORD COUNTY, CONNECTICUT

By

Robert W. Schnabel and John H. Eric

1964

For sale by U.S. Geological Survey, price $1.00